

Childhood Asthma

BACKGROUND

- Asthma is a chronic respiratory condition involving bronchospasm and chronic reversible airway obstruction
- In childhood exacerbations are most often triggered by viral infections

DIAGNOSIS

- Symptoms of cough, wheeze and shortness of breath
- May be triggered by infection, cold, exercise, allergens, smoke
- Variable intensity of symptoms over short and long time-frames. May have worse symptoms at night or in the morning, or seasonally in winter
- Improvement of symptoms on 2-3 months of preventer inhalers with worsening on discontinuation.
- Spirometry may be useful in developmentally older children, showing reversible outlet tract obstruction. Avoid in the acute setting.
- Recurrent viral wheeze is common in pre-school aged children and typically improves with age.
- Deciding when to move from a viral wheeze diagnosis to an asthma diagnosis is generally difficult but is more if:
 - (i) symptoms are present between viral episodes,
 - (ii) any there are any triggers other than viral illness,
 - (iii) a strong personal or family history of atopy is present,
 - (iv) symptoms are not resolving by school age

EXAMINATION

- General appearance, mental status and work of breathing are the most important measures of asthma severity
- Wheeze is not a useful marker of severity, however silent chest may herald respiratory collapse
- Auscultation may elicit asymmetrical findings due to plugging, but persistently focal findings should prompt consideration of alternative diagnoses (pneumonia, pneumothorax)
- SpO₂, heart rate and speaking ability are less reliable indicators of severity but can should be taken into account
- Bloods and blood gases are usually not helpful and may cause deterioration in a compromised child due to distress.

TREATMENT - Mild

- Inhaled Salbutamol 1st hr:
- 6 puffs q20 min <5 years
 - 12 puffs q20min >5 years
- Prednisolone 1-2m/kg/day x3-5 days
- Max 20mg in <2years/ 30mg in 2-5 years/ 40mg >5years
 - Oral prednisolone is not necessary in preschool children with viral associated wheeze who do not require admission or have other strong asthma risk factors.
 - O₂ if SpO₂ persistently <90%
- Can be managed at home if well appearing and responding well to the initial treatment with followup in place. Mild hypoxia (SpO₂ 90-94%) should not preclude this if there are no other concerning features.
- Refer to hospital/admit**
- If child looks unwell
 - Reduced alertness
 - Persistent moderate to severe work of breathing (WOB)
 - Poor response to treatment

HISTORY

- Assess symptoms (cough, wheeze, SOB) and their diurnal pattern
- Is there an inter-current viral illness or other trigger?
- What treatment are they currently on?
- If already on inhalers; ensure correct inhaler technique, type and dose
- Ensure that the spacer type is correct for the age of the child, is being used correctly and it's is neither too old nor being washed incorrectly (see manufacturers instructions).
- They may be at risk of more severe disease if:
 - (i) previous ICU admission
 - (ii) poor control
 - (iii) poor medication adherence
 - (iv) previous anaphylaxis

GENERAL ASTHMA MANAGEMENT

- Stepwise Pharmacological approach**
- Use age specific up to date guidelines/ recommendations**
- (1-5 years, 6-11 years, >12 -as per adolescent and adult guidelines)**
- GINA 2022 guidelines or
 - BTS guidelines
 - Review diagnosis, inhaler technique, exposures and adherence before each increased step

INHALERS

- 0-3years: Pressurised MDI with spacer with facemask
- 4+ years: Pressurised MDI with spacer with mouthpiece

NON-PHARMACOLOGICAL

- Allergen reduction
- Smoking and vaping cessation -not just moving outside
- Ventilation
- Treat mould
- Cover mattresses, remove curtains, soft toys and furnishings, carpets and rugs

CONSIDER DIFFERENTIALS WHEN:

- Symptoms from birth
- Failure to thrive
- Nasal polyps
- Consider anaphylaxis in sudden on-set wheeze/shortness of breath (SOB) enquire about ingestion. Give adrenaline if concerned that it may be anaphylaxis

REFERRAL

- Don't be afraid to refer to paediatrics/respiratory if:**
- Initial steps are not successful in managing the condition
 - High doses of inhaled corticosteroid (ICS) (>400µg/day) or frequent oral steroid requirement
 - Multiple atopic conditions
 - Medication toxicity
 - Suspected alternative diagnosis

REFERENCES:

1. GINA Guidelines 2022 main report -accessible from: <https://ginasthma.org/wp-content/uploads/2022/07/GINA-Main-Report-2022-FINAL-22-07-01-WMS.pdf>

2. RCH -acute asthma clinical practice guideline – available from: https://www.rch.org.au/clinicalguide/guideline_index/Acute_asthma/