Managing wheeze in preschool children

- Opportunities to improve asthma care
- Review the epidemiology of preschool wheeze
- How to assess and investigate preschool wheeze
- Review the management options for children with episodic viral wheeze & multiple trigger wheeze
- Not focusing on
  - Asthma care

RFH Paediatric wheeze admission rates (%) 2014

1/3 of A&E attendances are repeat attendances.
True or False?

Lower respiratory tract illnesses with wheeze occurs in around a third of all preschool children.

True or False?

- Isolated dry cough in a community setting is rarely if ever due to asthma
Epidemiology of preschool wheeze

- Lay people = multiplicity of upper & lower airway noises
  - be sure what exactly the family means by wheeze.
  - some European languages do not even have a word for wheeze.
- Clinicians: high pitched whistling sounds in expiration & associated with increased work of breathing.
  - High rate of pick up with auscultation.
- Isolated dry cough in a community setting is rarely if ever due to asthma

Practical approach to preschool wheeze

- Normal child—
  - commonest and also the hardest diagnosis
  - post viral cough, pertussis, anxious parents
- Serious condition (e.g. immunodeficiency)
  - rare, but essential to diagnose or refer.
- Conditions that might may exacerbate or mimic wheezing syndrome
  - gastro-oesophageal reflux, rhinitis
- True wheezing syndrome: episodic viral wheeze (EVW); multiple trigger wheeze (MTW)

Case: choose one option

- 18 month old Jonny
  - Parents worried about dry cough lasting for last five weeks.
  - 3 URTI/LRTI in last year after starting nursery
  - Thriving well. No atopy risk factors.
  - No exercise or night symptoms or nursery days lost.
  - Normal clinical examination.
A: Reassurance. Post viral cough.
B: Trial of inhalers/medicines
C: Refer
Serious conditions: Red flags

- Symptoms present from birth or perinatal
- Isolated upper respiratory tract disease
  - Stridor, chest deformity and asymmetric signs
  - Sudden onset of symptoms
- Persistent moist cough
- Failure to thrive
- Abnormal voice or cry
- Digital clubbing,
- Chest deformity

Cases: Episodic wheeze or multi trigger wheeze?

- 3 year old Gemma
- 4 year old Jonny

Definitions

- Preschool children
  - Episodic viral wheeze – the child is only wheezing during clinically diagnosed URTI
  - Multiple trigger wheeze – URTI, smoke, allergens, exercise, food allergy and pollution
- Asthma is a chronic disease characterised by wheezing, breathlessness, night time or early morning coughing
  - Episodes are usually associated with airflow obstruction within the lungs that is reversible with treatment
Preschool wheeze clinical categories

<table>
<thead>
<tr>
<th>Category</th>
<th>Episodic viral wheeze (EVW)</th>
<th>Multiple trigger wheeze (MTW):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viral URTI induced wheeze</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Interval symptoms</td>
<td>None.</td>
<td>Wheeze with triggers, such as exercise and smoke and allergen exposure.</td>
</tr>
<tr>
<td>Treatment</td>
<td>Symptomatic only for the episode</td>
<td>Rx is ↑ or ↓ depending on symptom pattern and severity</td>
</tr>
<tr>
<td>Eosinophilic inflammation &amp; remodelling</td>
<td>None</td>
<td>Similar to asthma</td>
</tr>
<tr>
<td>Will it lead to asthma?</td>
<td>Not in long run provided there is no h/s of atopy.</td>
<td>More likely with higher number of triggers.</td>
</tr>
</tbody>
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European Respiratory Society Task Force classification

Case: Episodic Viral Wheeze (EVW)

- What are treatment options for EVW?
- Would you prescribe Montelukast, inhaled steroids or oral prednisolone?
- Would you prescribe prophylactic Montelukast or inhaled steroids?

PREEMT trial – Use of Montelukast resulted in fewer visits to GP’s/ED & fewer days away from nursery
- Start Rx at the first sign of a viral cold and discontinue it when the child has recovered
- No evidence that inhaled corticosteroids or oral prednisolone helps in treatment or prevention of future episodes
- Some hospitalised children may need steroids
- Long acting β2 agonists are not licensed for use in preschool children
Multiple Trigger Wheeze (MTW)

- Treat acute episodes with Salbutamol or anticholinergics
- **Pragmatic regimen for treatment (Prof Bush, 2014)**
  - Step 1: Trial of inhaled corticosteroids or Montelukast in standard dose for max eight weeks
  - Step 2: Stop treatment; either there has been no improvement, in which case further escalation is not valuable, or symptoms have disappeared
  - If there is no benefit and the symptoms are worse – refer.
  - Step 3: Restart treatment only if symptoms recur; then reduce treatment to the lowest level that controls symptoms.

When should you refer?

- Investigations - SPT, PEFR or spirometry
  - Escalating dosages above BTS step 2/3
  - To establish and review definitive diagnosis
- Poor response +/- compliance
  - Trigger avoidance advice
  - Education & device technique
  - Risk assessment – severity and home visits
  - Management of co-morbidities
  - Communication with other agencies
- Involved people (doctor, child, family) are unhappy with outcomes

Clinical Gems

- Clarify what the family means by wheezing.
- Isolated dry cough in a community setting is rarely due to asthma
- Preschool wheeze - “episodic viral” or “multiple trigger”
- Pre school wheeze treatment is driven solely by current symptoms.
- Prednisolone is not indicated in preschool children with wheezing attacks
- If trials of prophylactic treatment initiated than a review must be done at 8 weeks.