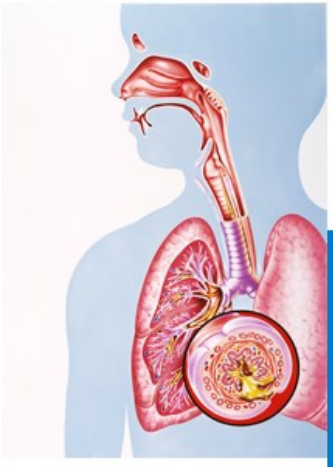
PAEDIATRIC ASTHMA



Paediatric asthma: a common condition

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Asthma is a common disease, affecting 15 percent of children in the UK. Typically the child with asthma will have episodes of wheeze, cough and difficulty in breathing. These symptoms tend to be frequent and recurrent, are classically worse at night and in the early morning. There are common triggers for these symptoms including viral upper respiratory tract infections, exercise, contact with pets, cold or damp air.

Cough is a common complaint in child
wheeze, be cautious about making a d

Having established whether the child t
Specific triggers may include dust, exe
cigarette smoke and environmental po
of a viral upper respiratory tract infectio
between infections. Episodic viral whe
asthma start with recurrent viral induce
episodic viral induced wheeze tend to outgrow their symptoms as they get older.

Alternative diagnoses of paediatric asthma

There are many conditions than can mimic asthma in children. Specific questions should be asked in the history (Table 1) and unusual clinical signs elicited on examination (Table 2) to exclude an underlying serious disorder. Alternative diagnoses include: structural abnormalities (eg bronchomalacia or stenosis), gastro-oesophageal reflux, a laryngeal problem, post-bronchiolitic wheeze, bronchiectasis (eg cystic fibrosis or primary ciliary dyskinesia), bronchopulmonary dysplasia, immunodeficiency, aspiration of foreign body, obliterative bronchiolitis, and congestive cardiac failure.

Investigations

Spirometry is useful to perform in children (usually older than 5 years) to assess variable airflow obstruction. Furthermore, it is important to document, where possible, bronchodilator reversibility, or bronchoconstriction to exercise. A record of variability of lung function using home peak flow recordings and symptom diaries over a month can be helpful in some patients.

Table 1	Summary of the BTS/SIGN Guidelines for the management of asthma for children aged under 5 years
Step 1	Inhaled short acting ß2 agonist.
Step 2	Add in inhaled steroid 200-400 mcg/day (or equivalent) OR leukotriene receptor antagonist if steroids cannot be used.
Step 3	In children 2 - 5 years consider trial of leukotriene receptor antagonist. In children <2 years consider proceeding to step 4.
Step 4	Refer to respiratory paediatrician.

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Table 2	Summary of the BTS/SIGN Guidelines for the management of asthma for children aged 5 - 12 years
Step 1	Inhaled short acting ß2 agonist.
Step 2	Add in inhaled steroid 200-400 mcg/day (or equivalent).
Step 3	Add in long acting ß2 agonist. If good response, continue long acting ß2 agonist. If inadequate response, continue long acting ß2 agonist and increase inhaled steroids to 400 mcg/day (or equivalent). If no response, stop long acting ß2 agonist, increase inhaled steroids to 400 mcg/day (or equivalent), consider trial of other therapies such as leukotriene receptor antagonist, theophylline.
Step 4	Increase inhaled steroids to 800 mcg/day (or equivalent).
Step 5	Add in oral steroids and refer to respiratory paediatrician.

Management of paediatric asthma

All children with asthma should have a written, individualised asthma management plan on acute management, guidance on daily treatment and when to call the emergency services. This must also include avoidance of airborne allergens and irritant triggers.

In children with atopic asthma, the long-term management is clearly defined by the British Thoracic Society/Scottish Intercollegiate Guidelines Network (BTS/SIGN) guideline (see Further Reading). There are variations depending on the age of the child. The management follows a stepwise approach until control is achieved. Patients are then maintained on the lowest level of treatment that still achieves control, with regular attempts to reduce the level of treatment once control is achieved.

The introduction of inhaled steroids has enhanced the management of chronic childhood asthma. Considerable benefit is seen with low to moderate doses (beclometasone up to 400 microgram/day or fluticasone up to 200 microgram/day). Beyond this, however, the dose-response curve is relatively flat in most children. Although side effects are unlikely at doses of 400 microgram/day of beclometasone equivalent, they become apparent at the higher doses.

One method of achieving better asthma control without increasing the dose of inhaled steroids is the addition of a long acting β2 agonist and/or a leukotriene receptor antagonist. Recently, leukotriene receptor antagonists have shown effectiveness in the management of viral induced wheeze, with one study showing a significant reduction in the rate of exacerbation and oral corticosteroid use.

Drug delivery for paediatric asthma patients

To optimise inhaled drug delivery for children with asthma, the correct inhaler device must be prescribed (Figures 1 and 2). NICE has recently published guidance on recommended inhaler devices for children (see Further Reading). Teaching both the patient and family correct technique for use of the inhaler can be handled by either the specialist or the paediatric nurses and is another important aspect of optimising drug delivery. At each clinic consultation, adherence to therapy as well as a review of inhaler technique must be assessed.

When to refer to a respiratory paediatrician

- If the GP is unfamiliar with treatments that are added on to inhaled corticosteroids; if 400 microgram/day of beclometasone or equivalent is not achieving control, then referral is advisable.
- Patient has reached step 4 of BTS/SIGN guideline.
- Parental concern or need for reassurance.
- Recurrent admission to hospital with acute asthma.
- Severe acute asthma, such as needing intravenous treatments or intensive care.
- Features that suggest another diagnosis or if the diagnosis is in doubt (Tables 1 and 2).

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