



Opinion

Management of asthma in children

Introduction

Asthma is the commonest chronic disease in children, affecting at least 15% of all children at some stage in their childhood.

This opinion sheet constitutes a summary of the latest guideline evidence on the management of paediatric asthma, with particular emphasis on the main areas of concern for parents – the diagnosis itself, the need for regular treatment including inhaled steroids, inhaler devices, lifestyle issues, and avoidance of trigger factors.

Diagnosis

A correct diagnosis is important to ensure that the right treatment is prescribed and that unnecessary medications are avoided.¹ The diagnosis of asthma is largely clinical and based on careful history taking, corroborated by examination, and supported wherever possible by objective evidence of reversible airways obstruction. Repeated assessment may be needed before a confident diagnosis can be made. Recurrent symptoms of cough, wheeze and shortness of breath, particularly at night and after exercise, in the context of a family or personal history of atopy are typical. A four-week trial of treatment is a pragmatic approach to differentiating the different 'wheezing phenotypes' in pre-school children.² If symptoms cease during the trial period and return soon after treatment is stopped, asthma is the likely diagnosis. In children over the age of six, peak expiratory flow (PEF) monitoring or spirometry should be used to provide objective evidence of the diagnosis. Repeated demonstration of >15% PEF variability correlating with variability of symptoms, is strongly suggestive of asthma. A failure to respond to anti-asthma treatment should lead to a review of the diagnosis.

The likelihood of other causes of recurrent respiratory symptoms varies with the age of the patient.¹ The younger the child the more likely it is that other diagnoses might be the cause of the presenting symptoms.³ Plotting height and weight on a centile chart may raise concerns about failure to thrive. Referral to a respiratory paediatrician should be arranged if the diagnosis is uncertain or if there are reasons to suspect a more serious cause.

Asthma in children

The diagnosis and management of asthma raises many issues for parents and children.

When discussing definite or possible asthma it is important to understand what the term means for them.

Acceptance of the diagnosis

Some parents may initially be shocked at the diagnostic label of asthma, but for many others the diagnosis is a relief and a confirmation of parental suspicions, especially if there is a family history of asthma.

Parents may have concerns that relate to:

- previous experience of asthma
- the need for regular treatment
- use of steroids and the side effects of asthma medications
- the impact on normal lifestyle e.g. limitation of physical activity, school, holidays, travel, work prospects
- avoidance of asthma triggers.

Previous experience of asthma

Previous parental experience or knowledge of asthma can reassure or cause concern. It is important to discuss any concerns about the condition and its treatment to ensure that these are addressed. This improves the chances of successful treatment and good asthma control.

Need for regular treatment

Treatment should follow established guideline recommendations such as the BTS/SIGN British Guideline for the Management of Asthma,⁴ or the International Primary Care Respiratory Group (IPCRG) Guideline on the Management of Asthma.⁵ A stepped approach provides a framework for titrating treatment according to the level of asthma symptoms and severity. Reducing treatment levels too soon can result in poor symptom control.

Asthma treatment and side effects of asthma medications

Asthma medications are generally safe and effective but parents often worry about the need for regular treatment and possible long-term side effects.

Careful explanation should be given about the use of bronchodilators. Parents need to be aware that if bronchodilators are needed regularly – three or more times a week – then regular preventive treatment should be started or increased. It is important to explain the side effects – such as tremor and tachycardia – of higher than

usual doses of bronchodilators. Such side effects are not dangerous but an indication to use a lower dose next time. This is important if self management advice about higher dose bronchodilators during exacerbations is to be followed confidently.

Many of the concerns about continuing treatment relate to the use of corticosteroids. The media often portray steroids as harmful and addictive because the word 'steroid' is used as a shortened form of both anabolic steroids and glucocorticosteroids. Inhaled corticosteroids are the first choice for preventer therapy at step 2 of the guidelines.^{4,5} Careful explanation to parents is essential to pre-empt and address potential concerns. Corticosteroid treatment should follow national guideline recommendations and observing the upper dose limits. Children who have difficult asthma and fail to respond to doses of 800 mcg day beclometasone or equivalent must be referred to a paediatrician for management advice. Regular oral steroids should only be instigated by a respiratory paediatrician.

It is important to be aware of the differing potency and appropriate dosages of the different inhaled steroids and inhaler types. Recent NICE guidance concluded that, on current evidence, there was no reason to distinguish between the available inhaled corticosteroids on the basis of clinical efficacy or profile of adverse effects.⁶

Failure to respond to treatment should prompt a review of:

- the diagnosis
- adherence to treatment
- drug delivery method
- dosage
- need for additional medication

Leukotriene receptor antagonists may be useful in children from six months of age as an alternative to inhaled corticosteroids, particularly if there are difficulties in delivering inhaled medication or if inhaled corticosteroids are declined. They are recommended as first choice add-on therapy at Step 3 in the guidelines for pre-school children.⁴ They may be useful for the non-atopic viral wheezer and if there is concomitant allergic rhinitis. Headache, dizziness and gastrointestinal upset are uncommon side effects.

If there is concomitant use of topical steroids for rhinitis and eczema, the total steroid dose needs to be taken into account and reviewed. Height and weight should be monitored and plotted on a centile chart in all

children with asthma to reassure parents and children that growth is normal.

Local side effects of oral candidiasis and dysphonia are reduced or avoided with the use of a spacer device and rinsing out the mouth after use. Using a spacer with a pMDI improves the effectiveness of inhaled steroid treatment while reducing oral deposition. It is important to step down the treatment to find the lowest dose of inhaled steroids compatible with good control as judged by:

- minimal/no symptoms
- minimal/no need for reliever medication
- no exacerbations
- no limitations of physical activity
- normal lung function.

All children should be reviewed at regular intervals, and provided with an individualised symptom-based asthma action plan. The ideal format for a management plan in under-5s is unclear, probably because of the poor response to treatment in viral wheezers.⁷

Inhaler devices

Lack of effective drug delivery is an important reason for treatment failure especially in pre-school children. A persistent and consistent approach is needed to establish treatment.

Parents need to be taught how to use spacer devices (with or without a facemask). As soon as possible the use of the device should be made fun, conflict avoided, and a pattern of behaviour established to enable device acceptance without an ensuing 'battle' between child and parent. Using several puffs of a bronchodilator by spacer to relieve wheezing and make the child feel better may be useful for gaining spacer acceptance.

Face masks should fit closely around the nose and mouth and single puffs of medication administered at a time, with a short pause between puffs. Plastic spacer devices need to be washed periodically and left to dry.

School age children want devices that are both effective and socially acceptable. Spacer use for bronchodilator medication may not be convenient or acceptable when away from home, in which case the child should be given an easily portable bronchodilator device and instructed in its use. It is important to listen to what is acceptable to the child and their parents and to work with them to find a device that delivers the right medication, that they can use and which takes account of their likes and dislikes – and current 'fashion'!⁸ Inhaler devices for bronchodilators to use away from home need to be small, portable, discreet and acceptable.

Lifestyle issues

Issues relating to asthma at nursery or school often cause concern. Schools should have a written asthma policy document for children with special medication needs. The school needs to be aware of the asthma diagnosis and the need for medication. A reliever

inhaler device should be accessible at all times. The school needs to know:

- how to recognise worsening asthma
- what to do if there is worsening of asthma symptoms
- what, and how much treatment to give
- what to do if there is no improvement
- a parental contact number.

Asthma UK provides school asthma cards which can be used to provide a written record of this information for the school or nursery.

It is important to encourage all children to participate in school activities, including exercise. Exercise is an important part of a healthy lifestyle because it enables an adequate level of fitness to be achieved, leads to a sense of well being, and helps to keep a normal weight. Pre-exertional treatment with a bronchodilator may be needed to prevent exercise-induced asthma symptoms.

Child minders, and those caring for children in nurseries need similar information, and specifically how to administer the inhalers correctly.

Asthma triggers

Lack of effective drug delivery is an important reason for treatment failure especially in pre-school children. A persistent and consistent approach is needed to establish treatment.

Viruses are the most common trigger of asthma in children and are difficult to avoid. Passive smoking is known to exacerbate asthma symptoms and to increase viral exacerbations in the preschool child. Parents and carers need encouragement and support to stop smoking or at least avoid smoking in front of the child. Smoking cessation should be discussed at every appropriate opportunity. In older children smoking should be actively discussed because smoking is an airway irritant and reduces the efficacy of asthma treatment.

Stress is an increasing problem and may occur when undertaking national performance tests and public examinations at school. The peak pollen season coincides with these important examinations and unfortunately can also exacerbate asthma and rhinitis symptoms. There is evidence that hayfever can contribute to a lower examination grade at GCSE.⁹

Clinical Review

Children with asthma should be reviewed frequently at the outset to confirm the diagnosis, monitor progress, step treatment up or down until good control is achieved, and to help the parents and child learn about the condition and its management.¹⁰ Thereafter review should be undertaken at least once or twice a year. Any exacerbation of asthma should prompt an early face-to-face review in primary care. Social, psychological and family problems can be a factor in poor asthma control and should be sought and addressed.

Review appointments provide an opportunity for control to be assessed, treatment reviewed and optimised and self management advice to be refined and reinforced. As a child with asthma gets older responsibility for this should increasingly be taken by the child.

Summary

There are many facets to the management of childhood asthma. Achieving a sound diagnosis is essential. Discussion between the health professional, the parents and the child is required to address any issues of concern. Current asthma guidelines provide the accepted treatment framework for the appropriate management of asthma.

Resources

Asthma UK: www.asthma.org.uk. For general information about asthma, action plans, pre-school guidelines and school asthma cards. They can also help schools develop an asthma policy.

Kick Holidays provide adventure holidays for children.

Education for Health: For information on asthma courses for health professionals.

www.enquiries@educationforhealth.org.uk

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