

Asthma in Practice Position Paper 3

Wheezing in pre-school children

van der Molen T, Østrem A, Price D, Thomas M, van Schayck CP

Wheezing is the most common symptom in pre-school children. It is very difficult to distinguish children with transient wheezing from children who have persistent wheezing and will go on to develop asthma. This is an area where there is minimal evidence of efficacy on which to make treatment decisions. More evidence on inflammatory phenotypes and their possible correlation with clinically-defined subgroups would help GPs tailor strategies for effective treatment and early intervention. In the absence of such information, some basic points can be made from current evidence to guide the management of wheezy, young children.

Practice Point 1: Recurrent chest symptoms in an infant may have many causes. Keep in mind other diagnostic possibilities.

Practice Point 2: Not all children who have persistent wheeze have steroid-responsive asthma. Most wheezing in pre-school children is transient. Indeed, a recent German follow-up study showed that 90% of children with wheeze but no atopy¹ lost their symptoms at school age and retained normal lung function at puberty. Work with parents to help them understand that time will tell, rather than commit to a diagnosis in the early years. Though persistent wheeze is a pointer to asthma, viral-associated wheeze is typically intermittent. The diagnostic picture is clouded by the fact that pre-school children get so many viral upper respiratory infections it appears that wheeze is persistent in some individuals.

Practice Point 3: Thorough history-taking from parents is the key to diagnosing asthma in the pre-school aged child. Seek information about the nature and duration of symptoms and exacerbating factors over time, family history, presence of atopy, rhinitis, smoking in the home.

Treatment in Primary Care

There are a number of treatment options used in primary care for wheezing in young children, including short-acting beta2 agonists, inhaled corticosteroids (ICS), and leukotriene receptor antagonists.

But what is the evidence for their use in young children in primary care? There are only a few general practice studies that can help guide us in this area, and lack of power makes their findings inconclusive. The EASE (**E**arly **A**sthma **P**rophylaxis, **N**atural history, **S**keletal development and **E**conomy) study randomised 86 children (two-thirds less than six years old) with symptoms suggestive of asthma/wheeze to ICS and beta2-agonists or beta2-agonists treatment only.² This found no beneficial effects from the addition of ICS but extra costs and effects on bone metabolism. Another study, the ASTRERISK study, which included 96 pre-school children from primary care with persistent respiratory symptoms, also showed no beneficial effect of ICS.³

In conclusion, these two small primary care studies have cast doubt on the efficacy and safety of ICS in pre-school children. The effectiveness of ICS in any individual child should be monitored carefully, noting response to treatment and deterioration on withdrawal.

Practice Point 4: Carefully monitor individual response to ICS treatment in pre-school children with intermittent wheeze and at low risk of developing asthma and be prepared to stop treatment if the child does not respond or the child does not relapse when treatment is withdrawn.

By contrast, a recent trial in secondary care found that in a high-risk population of young who had experienced four or more wheezing episodes in the first 2-3 years of life, two years of ICS therapy did control symptoms. However, no change in the development of asthma symptoms or lung function during the third, treatment-free year⁴ was observed, indicating that there was no disease-modifying effect.

Practice Point 5: ICS are useful to control the disease – if asthma is the disease – but will not modify it. ICS might be helpful in persistent asthma but do not use high doses (> 400 micrograms BDP equivalent). If following a review of technique, compliance, environment and diagnosis, high doses of ICS are thought necessary, specialist referral, where practical, is advisable.

Leukotriene receptor antagonists may be helpful in intermittent and mild, persistent asthma. A 12-week study of montelukast in children aged 2-5 years showed that the drug improved asthma symptoms compared to placebo.⁵ The MOSAIC study found that montelukast was similar to fluticasone in increasing the percentage of rescue-free days but it was less efficacious in other clinical outcomes in school-aged children with mild asthma.⁶

Practice Point 6: The role of ICS in intermittent asthma, defined as children who have intermittent symptoms such as cough and wheeze but also have periods without symptoms, is not clear. If symptoms are severe enough to require repeated healthcare utilisation a LTRA may be a useful alternative to low-dose ICS. For mild persistent asthma, defined as children who suffer from relatively mild symptoms but who seldom have periods of longer than a week without symptoms, the choice of anti-inflammatory agent is an ICS or LTRA. For more severe, persistent asthma ICS should remain first line anti-inflammatory therapy, although the phenotype of severe asthma in children is rare in primary care.

References

1. Illi S, *et al.* *The Lancet* 2006;368:763-770
<http://www.thelancet.com/journals/lancet/article/PIIS0140673606692866/abstract>
2. Baxter-Jones AD and Helms PJ. *Clin Exp Allergy* 2000;30:1618-26
<http://www.blackwell-synergy.com/doi/full/10.1046/j.1365-2222.2000.00941.x?prevSearch=allfield%3A%28Baxter-Jones%29>
3. Schokker S, *et al.* *Primary Care Respiratory Journal* 2006 May 20; [E published ahead of print] No abstract available.
PMID: 16716731 [PubMed - as supplied by publisher]
4. Guilbert TW, *et al.* *NEJM* 2006;354:1985-1987
http://content.nejm.org/cgi/reprint/354/19/1985.pdf?hits=20&where=fulltext&andorexactfulltext=and&searchterm=Guilbert&sortspec=Score%2Bdesc%2BPUBDATE_SORTDATE%2Bdesc&excludeflag=TWEEK_element&searchid=1&FIRSTINDEX=0&resourcecetype=HWCIT
5. Knorr B, *et al.* *Pediatrics* 2001;108:E48
<http://pediatrics.aappublications.org/cgi/content/full/108/3/e48>
6. Garcia Garcia ML, *et al.* *Pediatrics* 2005;116:360-369
<http://pediatrics.aappublications.org/cgi/content/full/116/2/360>